

## Using Virtual Reality to assist Children with Special Needs

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### Introduction

As a student doing research at UNCC this summer. I worked on a project "Using Virtual Reality to assist Children with Special Needs". In a study done by the federal department of education reported since 2008 98.9% of all public schools have various forms of technology and Internet access available for students. However, only 23.9% have any technology to assist children with disabilities. The software I have worked on this summer would be virtual reality learning aid that would have different characters for a user to choose from and then the user would be taught a lesson that they would normally learn in school. i.e. math, science, history, etc. except the user would be taught at an easier pace. And the teachers would be able to customize it to update and to be specific to an individual's special need. So it wouldn't eliminate the use of teachers, also it would present environments not limited to being in a classroom so the user can feel normal and not feel restricted by their disability in the environments presented.

### Background

In the past there have been software created that presented virtual environments to children with special needs that taught like real teachers and created environments where the user could become comfortable in different situations such as going to the store or crossing the street. However, it wasn't specific to individual needs and couldn't be customized.

### My Work towards Research

#### I. INTRODUCTION

- a.)Where to start?
- b.)Decided to study if there was bias with the characters race or look.

- 1.)African American child
- 2.)Spanish American child
- 3.)Irish American child
- 4.)Mixed race American child
- 5.)Polish American teacher

#### II. Created Useable script for a scenario

#### III. Drew up storyboard

- a.)Displayed questions to determine bias

- 1.)Which character is most popular?
- 2.)Who has the most friends?
- 3.)Who would they like to play with or be friends with?
- 4.)Who would they invite home?
- 5.)Who is the nicest?
- 6.)Who is the kindest/meanest?
- 7.)Who is good/bad?
- 8.)Who would they share their lunch with?
- 9.)Who is happy/sad?
- 10.)Which character would they like to be?

#### I. Learned Java

#### II. Created two front page GUI's

- a.)Settled on one GUI

- 1.)Created 5 follow-up pages

#### I. Learned Quidam Software

#### II. Created virtual humans of different races

#### III. Learned Animeple Software

- a.)Gave Virtual Agents animations

### Impact

- I. Long term project
- II. Created a test study for bias testing
- III. Will help long term project
- IV. Helps children Globally
- V. Socially Relevent

Below are two GUI's created in Java and a crafted background made in Adobe Photoshop



### Conclusions

- virtual environments can assist children with special needs
- virtual humans can assist children with special needs
- test studies can help with any questions about project
- tutorials can teach software
- project will help children globally

### Future Work

In the future I would start to make the software more into a full virtual environment that can be readily available in classrooms to assist children with special needs. It would be able to be downloaded, and used to teach.